SMD Operations Procedures Manual

8.1.3.13 OPERATION OF MODEL 4000 REFRIGERATOR (MAGCOOL REFRIGERATOR)

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Hand Processed Changes

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8.1.3.13 Operation of Model 4000 Refrigerator (MAGCOOL Refrigerator)

1.0 Purpose

This procedure provides instruction for STARTUP/SHUTDOWN and operation of the MAGCOOL Refrigerator Model 4000.

2.0 Responsibilities and Scope

Operator is responsible for STARTUP/SHUTDOWN and operation of the refrigerator.

3.0 Prerequisites

3.1 Operator shall be trained by a supervisor or an authorized operator.

3.2 Training shall include the Mycom compressor and the Test and Measure system on MAGCOOL Refrigerator (MODEL 4000).

4.0 Precautions

4.1 Hearing protection shall be worn in the Compressor Rooms and in the Refrigeration Room. (MODEL 4000).

4.2 Ensure only authorized personnel are near units to be operated.

5.0 Procedure

Refrigerator and Test and Measure System Cooldown. This process should be started when the magnet in Cooldown 1 approaches 100^0 K. As each step is completed, an entry to that effect should be made in the Logbook.

5.1 Set pressure controller to 220 psig.
Start Mycom compressor.
At Refrigerator set the following valves:

5.1.1 Turn on LN_2.

5.1.2 PC-1 Controller in **MANUAL** and closed.

5.1.3 PI/TC-1 Controller in **MANUAL** and closed.

5.1.4 PC-3 Controller in **MANUAL** and closed.

5.1.5 TC-1 Controller in **MANUAL** and open.

5.1.6 At CRT display pg. D23.

5.1.7 Close valves D22, D23 and D20.

5.1.8 Open valve D24.

5.1.9 Set "**ENABLE/RESET By-pass Valve Logic**" Flag **RED** move cursor to **RED PART OF FLAG** and **PRESS CLEAR** then **PRESS SET.**

5.1.10 The **FLAG** should be all **RED** and this means the computer logic will operate the refrigerator bypass valves.

5.7 Start gas flow through refrigerator and test and measure system.

5.7.1 Crack open valve MOV 205.

5.7.2 When pressure at PI1002 reaches 245 PSIA open valve fully.

5.7.3 Remove jacks from engine.

5.7.4 Start engines E-19 and E-20, set speed at 180 RPM.

5.7.5 Manually crack open valve PI/TC-1 controller until pressure is 165 psi then switch controller to auto.

5.8 After system is cold and pre and sub cooler pots are full.

5.8.1 Throttle E-19 and E-20 to approximately 120 to 150 rpm

5.8.2 Shut one of the engines off.

5.9 You are now ready for operations.

5.9.1 <u>To Shut down MAGCOOL Refrigerator</u>

A. Reduce interstage press to ~45 psig at Mycom. Reduce discharge press to ~225 psig.

B. Close MOV 205- inlet to refrigerator, stop engines and let pressure drop to return pressure.

C. Stop circulator before loop pressure reaches 2 atms.
Bring cursor to **CIRCULATOR** flag, press **CLEAR.**

D. Remove from **CIRCULATOR MODE.**
Bring cursor to CIRCULATOR MODE flag, press CLEAR.

E. Unload Mycom to ~50%. Leave enough capacity to handle pumpback of returning gas. When system is stable, unload and stop compressor.

F. Shut LN_2 Valve N1001A

6.0 Documentation

Documentation is kept in the MAGCOOL Logbook located in Building 902.

7.0 References

7.1 Operations and Maintenance manual provided by CVI is kept in the MAGCOOL Control Room located in Building 902.

7.2 An Operators Problem Guide and Operations Guide is give to all operators and a copy is kept in the MAGCOOL Control Room located in Building 902.

8.0 Attachments

None